EMERGENCY PREPAREDNESS
(Emergency Action Plans and Lightning Safety)

Safety Training Goal: Understand the importance of being prepared to handle emergencies in the workplace and that preparedness is essential to lightning safety.

Section I. Emergency Action Plans

1. Introduction.

The definition of an accident is something that is unplanned or unexpected causing loss or injury. Accidents, big and small, happen in the workplace and off duty. The best way to deal with accidents is to avoid them. Knowing how to respond in an emergency can mean the difference between controlling a difficult situation and total disaster.

2. Discussion.

a. Emergency Action Plans (EAPs). The 29 CFR 1910.38, General Industry Standard requires that EAPs are written to provide employees with information on procedures to be followed during recognized emergency situations. On MDW, these emergencies may include, but are not limited to:

(1) Fires.

(2) Tornadoes and other severe weather conditions.

(3) Toxic substance releases.

(4) Bomb threats.

b. The EAPs are required for all facilities. An EAP is developed for a specific facility, but certain elements are required for all EAPs. These elements, as a minimum, will be included in the plan:

(1) Emergency escape procedures and emergency escape routes. The use of floor plans or workplace maps that clearly show the emergency escape route should be included in the EAP.

(2) Procedures to be followed by personnel who stay at the worksite to perform critical procedures before the evacuate.

(3) Procedures to account for all employees after an emergency evacuation have been completed.

(4) The methods for reporting fires and other emergencies.

(5) Rescue or medical duties for personnel who are required to perform them.

(6) Names or job titles of personnel who can be contacted for further information or explanation of duties under the plan.

c. When discussing EAPs everyone should be aware of:

(1) How to report a fire, chemical spill, or other accident or incident.

(2) Emergency alarms that will be used.

(3) The responsibilities for shutting down operations or systems in order to avoid making a bad situation worse.

(4) Where to find fire extinguishers and first-aid equipment.

(5) How to alert others to evacuate the area.

(6) The locations of emergency exits and how to reach them quickly and in an orderly fashion.

(7) The assigned point for assembling after evacuating the hazard area, so that the whereabouts and safety of all employees can be accounted for.

3. Conclusion.

a. When an accident does happen, there's no time to take a refresher course on the proper procedures to follow. Employees' response to an emergency should be automatic, based on clear communication and thorough training.

b. For most employees, the most important action they can take during an emergency is to follow directions, evacuate the area quickly, but calmly, assemble in a designated area, and avoid doing anything that interferes with the proper response of others.

SECTION II. Lightning Safety

1. Introduction.

a. Lightning cannot be "stopped" or prevented. This makes absolute protection against lightning impossible. Knowledge and preparedness is the best defense against lightning's consequences.

b. Lightning is the leading cause of weather related personal injuries. Lightning causes over $2 billion of property damage each, and causes more damage in the United States than

floods, hurricanes, or tornadoes.

c. The National Lightning Safety Institute provided the following facts:

(1) Eighty-five percent of lightning victims are children or men.

(2) The majority of those injured are engaged in recreation or work activities.

(3) Twenty percent of lightning strike victims die and 70 percent of those that survive suffer serious long-term effects.

2. Discussion.

a. Lightning Safety Tips:

(1) Practice the "Flash-To-Bang" measurement of lightning distance. This is the time from SEEING THE LIGHTNING FLASH to HEARING THE THUNDER. For each 5-seconds that you count, the lightning is 1 mile away. So, 25 seconds (counted from the flash-to-bang) = 5 miles away; 20 seconds = 4 miles away. At a count of 15 seconds (3 miles) take be prepared to take shelter.

(2) If outdoors: Avoid water. Avoid metal objects such as electric wires, fences, golf clubs, machinery, motors, power tools, railroad tracks, ETC. Unsafe places include tents, golf carts, small open-sided rain shelters, or underneath isolated trees. Avoid hilltops and open spaces. Where possible, find shelter in a building or in a fully enclosed metal vehicle such as a car, truck or a van with the windows completely shut. If lightning is striking nearby, you should:

(a) Avoid direct contact with other people.

(b) Remove all metal objects.

(c) Crouch down, with your feet together and hands on knees.

(3) If indoors: Avoid water. Stay away from open doors and windows. Hang up the telephone and take off headsets. Lightning may strike electric and phone lines an induce shocks. Turn off and stay away from appliances, computers, power tools, television sets, etc. Remain inside until the storm has passed.

(4) If near someone injured from lightning, give first aid procedures if you are qualified to do so. An injured person does not carry an electrical charge and can be handled safely. Call 911 or send for help immediately.

b. Miscellaneous Facts.

(1) Lightning comes from thunderstorms (and snowstorms and volcanoes). Lightning is static electricity gone giant-scale.

(2) The average lighting flash would light a 100-watt bulb for more than 3 months.

(3) Lightning's temperature exceeds 50,000 degrees F (or three times hotter than the surface of the sun. Its speed is 90,000 miles per second (one hundred million feet per second). The average thickness of a bolt is 1-2 inches.

(4) Thunder is always associated with lightning. Thunder is the shock wave created by super heated air in the lightning channel.

(5) It's inaccurate to say that lightning can be "stopped" or prevented. It is a totally capricious, stochastic (1ook it up!) and unpredictable event.

(6) Trees contain 20% moisture content. Humans have 65% moisture content. When lightning strikes a tree, it is following the path of least resistance. If you're waiting out the storm under the tree - tag you're it!

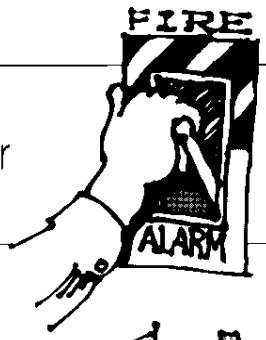
(7) Lightning does strike twice. It hits the Empire State Building an average 21 to 25 times per year. A U.S. Park Service Ranger, Ray Sullivan was struck by lightning seven different times between 1942 and 1976. He survived.

(8) What's good about lightning? It produces a lot of the nitrogen compounds that are important for plant growth. It provided early man with his only source of fire. It's better than Fourth of July fireworks and its FREE!

3. Conclusion.

Lightning is dangerous because it is random and unpredictable. Lightning safety is a priority. You must be prepared to act quickly. Please review the lightning safety tips.

Be Prepared!



● **Know how to report** a fire, chemical spill, accident or other incident, and to act quickly. Your fast action could save lives.

● **Recognize** the sound of the emergency alarm.

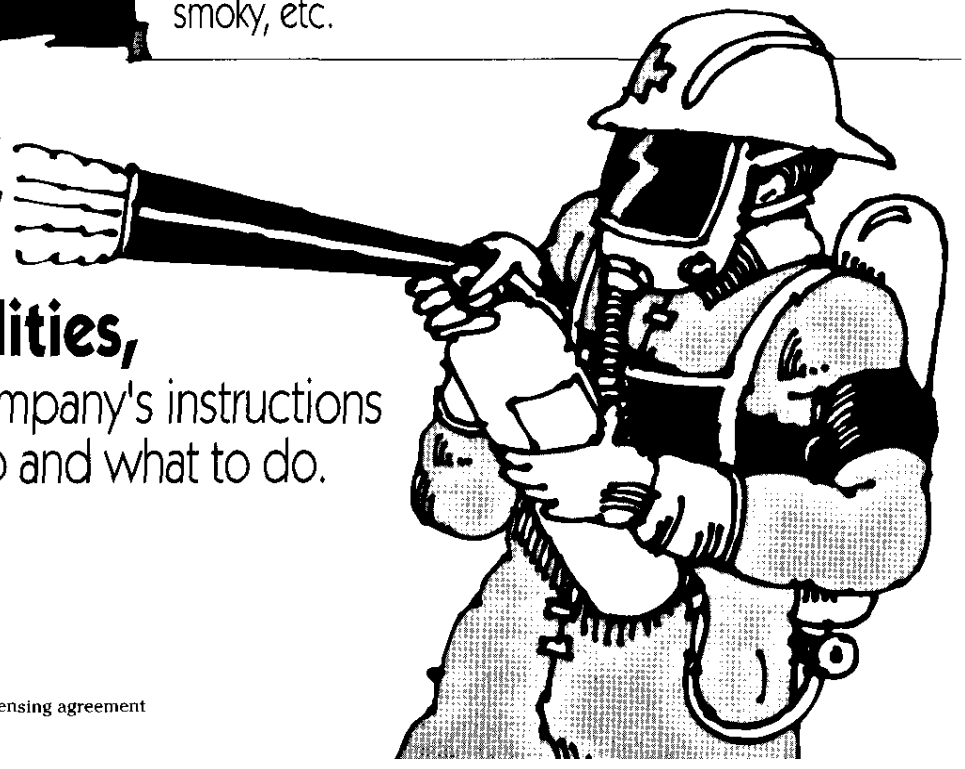
● **Know your responsibilities** for shutting down operations or systems.

● **Know where to find** first-aid supplies and fire extinguishers.

● **Alert** other people around you to evacuate.

● **Follow** your assigned evacuation route and meet at your assigned assembly point. Practice evacuating now. In a real emergency it might be dark, smoky, etc.

If you have emergency response responsibilities, follow your company's instructions on where to go and what to do.



Number, Please!

Whom should I call in an emergency? (Fire marshal, first aid/CPR person, etc.)

Where are the first-aid kits?

What are my emergency responsibilities (or should I just evacuate)?

Where are the fire extinguishers?

What is my evacuation route?

Where do we assemble?

Other key emergency information:

Storm Alert!

Lightning and Thunder Storms

Lightning storms kill more people than any other kind of storm. Such storms occur most often in the summer months. In fact, more than two-thirds of lightning deaths occur in June, July and August, when people are most likely to be outdoors. Survivors have reported that they could tell lightning was about to strike in their area during a thunderstorm when static electricity in the air made their skin tingle and their hair stand on end.

If lightning hits something else before striking you, its force is lessened. It may not necessarily kill you, but injuries can range from shock and minor burns to broken bones, serious burns, suffocation and heart failure. Nearby lightning that doesn't strike you at all still causes shock waves that are powerful enough to crush your lungs.

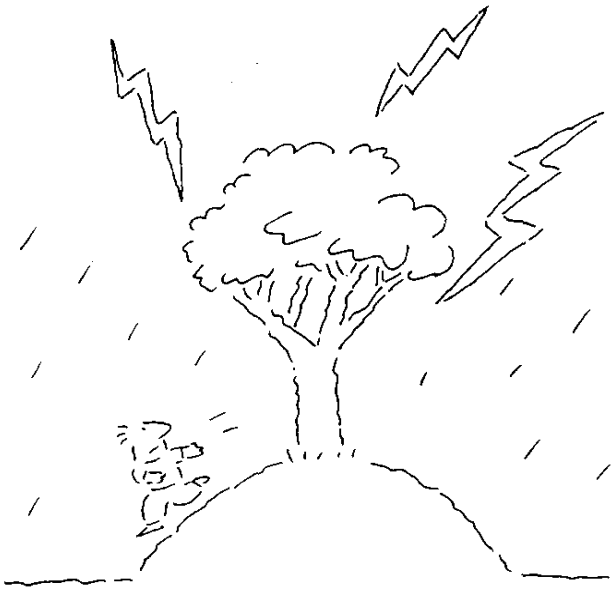
Lessening Your Risk of Being Struck by Lightning

If a lightning storm looks likely while you're outside or in an isolated building, follow these tips:

- Get off high ground and away from tall trees, the openings of caves, rocky overhangs or large boulders.
- Keep well away from anything made of metal, including a bicycle or motorcycle. The only exception is your car if you are driving. A car is one of the safest places to be, even if lightning strikes it.
- In an open area kneel on the ground, preferably on something dry, since water is a good conductor of electricity. Keep your feet and knees close together and your hands off the ground, bend at the waist and lower your head as close as to your knees as possible until the danger passes.
- If you are swimming or in a small boat, get to the shore immediately. If you are in a large boat, go below. The boat pilot should not touch anything made of metal.
- Do not golf, fly a kite or ride a horse during a lightning storm, even if no rain is falling.
- At home, unplug your TV and disconnect any wires that may connect to antennas on the roof. In fact, avoid all electrical appliances and all parts of your plumbing system.

First Aid for Lightning Strikes

A direct strike can cause the victim's clothing to catch fire and can melt metallic jewelry. If this happens, and the victim is standing, get him or her to lay down on the ground. Trip or knock a panicking victim down if necessary. Throw water or a heavy blanket or coat over him or her to extinguish the flames. If the victim stops breathing, administer rescue breathing while someone calls for emergency medical assistance. If you detect no pulse and you are trained in CPR, use that technique. Gently wrap burned areas in a clean cloth, but if clothing is sticking to burned skin, don't try to remove it. If lightning strikes are still a risk, try to carry the victim on an improvised stretcher to a safer area. Keep the victim warm and comfortable until help arrives. Even if the victim appears unhurt, have him or her see a medical professional as soon as possible. Since obvious symptoms are sometimes delayed, the victim may be in shock and not know it.



LIGHTNING SAFETY TIPS

Your safety is our first priority. Lightning is dangerous because it is random and unpredictable. Please read, learn and teach others the following lightning safety tips. Be prepared to act quickly.

1. Practice the "Flash-To-Bang" measurement of lightning distance. This is the time from SEEING THE STROKE to HEARING THE THUNDER. For each 5 second count, lightning is 1 mile away. So, 25 seconds = 5 miles away; 20 seconds = 4 miles away. At a count of 15 seconds (3 miles) take immediate defensive actions.

2. IF OUTDOORS...Avoid water. Avoid metal objects such as electric wires, fences, golf clubs, machinery, motors, power tools, railroad tracks, etc. Unsafe places include tents, golf cars, small open-sided rain shelters, or underneath isolated trees. Avoid hilltops and open spaces. Where possible, find shelter in a building or in a fully enclosed metal vehicle such as a car, truck or a van with the windows completely shut. If lightning is striking nearby, you should:

- A. Avoid direct contact with other people.
  B. Remove all metal objects.
  C. Crouch down, with feet together and hands on knees.

3. IF INDOORS... Avoid water. Stay away from open doors and windows. Hang up the telephone and take off head sets. Lightning may strike electric and phone lines and induce shocks. Turn off and stay away from appliances, computers, power tools, television sets, etc. Remain inside until the storm has passed.

4. If a nearby person is injured from lightning, give first aid procedures if you are qualified to do so. An injured person does not carry an electrical charge and can be handled safely . Call 911 or send for help immediately.

THE EMERGENCY TELEPHONE NUMBER IS _____.

Brought to you as a public service by the National Lightning Safety Institute , Tel. (303)-666-8817 .